

REMARKS

Reconsideration and allowance of the above referenced application are respectfully requested.

Claims 10-11, 13 and 16-19 and 22-23 stand rejected under 35 USC 102(b) as allegedly being anticipated by Seitz et al., or, in the alternative, under 35 USC 103(a) as allegedly being unpatentable over Seitz et al. in view of "*Pulsatile Heart Flow: A Universal Time Scale*" by Gharib et al. (hereinafter "Gharib"). This contention has been obviated by the amendment of certain claims herein to better emphasize their patentable distinctions.

In response, claims 10 and 17, the independent claims in this application, are amended herewith to define more specifically what is meant by the "formation number", and to claim the specific use of the differential formation number to keep track of certain operations.

Claim 10 has been amended to recite determining flow parameters using noninvasive techniques, and where those flow parameters include an amount of flow over time in an annulus, and information indicative of the size of the annulus.

Claim 10 has been amended to recite that only those flow parameters are used to determine a formation number indicative of cardiac information. This emphasizes the distinctions over the prior art to Seitz which bases many of the parts of his number on assumptions, not measured parameters.

Claim 10 also recites using the differential  $F_n$  as an assessment of progress of the valvular dysfunction.

Claim 17 has been amended to recite similar techniques of determining flow parameters of the patient's heart and an amount of flow over time in an annulus and information indicative of the size of that annulus and using those flow parameters to determine a formation number indicative of cardiac information. Claim 17 also defines using the differential  $F_n$  to assess an effectiveness of the operation. This further distinguishes over the hypothetical combination of Seitz in view of Gharib.

Nowhere does Seitz et al. in view of Gharib's teaching about formation numbers have any teaching or suggestion of the differential formation number of the type claimed.

In fact, Seitz uses his assumptions to determine a probable size of the heart, and then compares the theory with autopsy measurements to determine the validity of these assumptions. See in general column 18 of Seitz. That is, all of the assumptions made in the official action about what Seitz must be doing do not take into account what is actually happening in Seitz: Seitz is making a number of different assumptions, then carrying out calculations based on those assumptions, and then testing those assumptions against cadavers, see page 18.

Note importantly that claim 10 defines using the differential formation number to assess the progress of the valvular dysfunction. Nowhere do either of the cited references alone or in combination, teach or suggest this kind of system being indicative of the progress of a valvular dysfunction. In fact, Seitz is testing his model against autopsies, not determining a progress of the valvular dysfunction. It is logically inconsistent to consider that a valvular dysfunction can have progress in an autopsy.

In addition, claim 10 now defines that the flow parameters are detected using noninvasive techniques, and that only those flow parameters are used to determine the formation number. As previously discussed, Seitz uses many assumptions beyond the measured parameters, and certainly does not use only those flow parameters, as claimed, to determine the formation number. Moreover, Seitz does not describe a way to determine information about the heart using these noninvasive techniques. In fact, the only way that Seitz only discloses testing these values via cadavers.

Therefore, and for these reasons, claim 10 should be allowable along with the claims that depend therefrom.

Claim 12 defines that this is used to test atrial defibrillation. Page 4 of the official action specifically admits that neither of the cited prior art references teach or

suggest this. The rejection states that this would be obvious, but gives no reasons for this obviousness conclusion.

In fact, it would not be obvious from Seitz to determine atrial difibrillation: Seitz quite simply teaches nothing about this, and certainly does not teach that this can be determined via his techniques. Seitz in view of Gharib would only teach a Seitz system that taught determination of various parameters indicative of heart function, and testing those parameters based on cadaver parameters. There is no teaching or suggestion of using these parameters for determining atrial defibrillation. In fact, the contention that these parameters could be so used is based on hindsight, not on the teaching of the present specification.

Claim 17 has been amended in a similar way, and claim 17 further comprising determining valvular functions of the patient after a cardiac operation, in a similar way to those discussed above. There is absolutely no disclosure in either Seitz or in Gharib of assessing valvular functions of the patient by determining flow parameters in this way. Claim 17 defines using the formation number before operation, intermittently after the operation, and using the differential formation number to indicate the effectiveness of an operation. There is not one word about this in either Seitz et al. or the Gharib article. Seitz et al. simply describes the methods of determining blood

flow within the heart, but says not one word about using this blood flow to determine effectiveness of an operation.

Therefore, each of these claims should be allowable for these reasons.

The dependent claims not specifically mentioned herein should each be allowable over the prior art on their own merits.

It is believed that all of the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

For all of these reasons, it is respectfully suggested that all of the claims should be in condition for allowance. A formal notice of allowance is hence respectfully requested.

If the Examiner believes that communications such as a telephone interview or email would facilitate disposal of this

case, the undersigned respectfully encourages the Examiner to  
contact the undersigned.

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail (using the email address harris@schiplaw.com). I understand that a copy of these communications will be made of record in the application file.

Please charge any fees due in connection with this response, (including any fees concurrently paid via EFS), to Deposit Account No. 50-4376, small entity.

Respectfully submitted,

Date: 11/20/07 \_\_\_\_ / Scott C Harris / \_\_\_\_\_  
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